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## **SARS Protection – More than a Face Mask Total Immune System Enhancement**

***Could SARS eventually be deadlier than the Spanish flu epidemic of 1919 that killed more than 50 million people?***

***Could the higher rate of death for victims of SARS in Western countries be due to their high-fat, meat- and dairy-based diet? <sup>1</sup>***

SARS, or severe acute respiratory syndrome, which is caused by a virus, is making headlines worldwide – so you have most likely thought about how you might avoid becoming a victim. A new Gallup poll reports that 43 percent of Americans are now worried about the disease. Nearly a half a million web sites have been generated, selling protection – from face masks and disinfectants to nutrients. As of the end of June, 8000 cases in 27 countries with 800 deaths have been reported. (I realize these seem like paltry numbers when it comes to dietary diseases like diabetes, heart attacks, strokes, and cancer, but it has the potential to become a very big cause of death and suffering.) Many health authorities are declaring victory over this virus – but don't be so sure. The future may be much bleaker than these optimistic and unsupported predictions, especially with the winter months of high infectivity approaching soon.

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## **Cure Your “Beef Habit” Today with a Little Mad Cow**

*The infectious agent causing Mad Cow Disease may soon be found in most animal products, including beef, chicken, pork, gelatin, and glandular supplements.*

The first change we made in our diet almost 30 years ago was to give up the red meat – more specifically, the beef. If you haven't already done so, after reading this article, I am confident you will be well on your way to making this long-overdue change. The threat from an unhealthy meat supply has changed many others – after the appearance of Mad Cow Disease in England in 1996 wholesalers from Spain see page 12

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Some people fear the SARS virus could become a worse epidemic than the Spanish flu of nearly a century ago. Right now the SARS problem does not seem like such a serious threat, but microbes often adapt and change behavior in the process of spreading. After an initial wave of spreading across the world, the Spanish flu virus became 10 times more virulent during its second swell. There are some interesting comparisons between the viruses:

- Both may have originated in China
- Both began as diseases in animals and through mutation gained access to humans
- Both are systemic illnesses, but involve primarily the respiratory system
- Both are spread by coughing and close, casual, contact
- Both spread more viciously during the winter months
- Malnourished (who are often the poor) fare worse in both viral infections
- SARS is deadlier, killing 10% to 15% of victims, compared to 3% for the Spanish flu
- No effective medications are available for either virus
- Quarantine is of very limited effectiveness – both are highly contagious before symptoms appear, and one person can spread the virus to many other people

Right now, not traveling to hot spots, like Asia or Toronto, Canada, seems to be very effective prevention, but very soon that strategy may not have value if the virus spreads into your neighborhood. Wearing a face mask, gloves, and washing your hands are also very superficial approaches for protecting you and your family – and the fact that the virus lives on surfaces for several days will make it necessary to maintain this barrier-type protection all of the time and to strictly avoid cross-contamination. Modern drug approaches have failed – the combination treatment of antibiotics, antiviral agents (Ribavirin) and steroids is essentially useless.

Of great interest is the fact that the death rate in Toronto is twice as high as the overall death rate, which reflects figures mostly from China (12.7% vs. 6.4%).<sup>1</sup> Even with all the medical technology, hospitals, and drugs in Canada compared to China, people in Toronto are much worse off. Does this mean the Chinese are healthier people, with stronger immune systems? I think so. The main difference between these two populations is their diet – the Chinese are living on a higher carbohydrate (rice), higher vegetable, lower-fat, lower-meat, lower-dairy diet than the people in Toronto. The diet of Westerners inhibits their immune system.

The newest figures predict 15 percent of the victims of this disease will die. Death rates vary by age: 6% among those 25 to 44; 15% in those 45 to 64; and 50% for people 65 and older. Obviously not everyone exposed catches this virus, and even fewer of those infected die from SARS. Therefore, you want to do everything possible to be among the stronger people who resist becoming infected, or as a second choice, who survive. Your best chances to accomplish these goals are with your own innate strengths – by bolstering your immune system into a disease-fighting machine.

A healthy immune system works in an orchestrated way with many players defending the body against foreign invaders, like the SARS virus (a coronavirus). Our skin and mucosal membranes provide a

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physical barrier. In addition to acting simply as a barrier, these surfaces mount an inflammatory reaction against the invaders. Unfortunately, this virus sometimes penetrates surfaces like the membranes of the eyes, nose, mouth, intestine, and airways (lungs). Once the intruders are inside the body, cells that eat the invaders, called phagocytes, come into action. Other cells, called lymphocytes and natural killer cells make antibodies and other substances that deactivate and kill the virus. Your immune system will mount and sustain for weeks the battle for your life – until won or lost. Right now you can make some decisions and changes that will favor winning.

### **The Young and the Elderly**

People living at both ends of life – babies and seniors – are most susceptible to infections of all kinds and worse outcomes. Exclusive breast-feeding for 6 months, followed by continued breast milk until 2 years of age with the addition of starches, fruits and vegetables is the best protection for infants. (No vaccines are yet available for SARS.) When mother is exposed to an infection her immune system makes antibodies and other anti-infective substances (IgA, lactoferrin, or lysozyme) that are transferred through her milk directly into the baby – whose intestine at this stage of life is permeable and able to absorb all of these disease fighters.<sup>2</sup>

As we age, the strength of our immune system declines, resulting in an increase in incidence of infections, cancer, and other diseases. To make matters worse, nutritional deficiencies that affect their immunologic vigor are found in one-third of the elderly in industrialized countries. Those at especially high risk of poor nutrition are the very old, poor and/or isolated persons. Better nutrition for these people is no different than for people of other ages – they need a diet based on starches with the addition of fruits and vegetables. However, in this age group, people with diabetes, and in persons in developing countries – all groups vulnerable to nutritional deficiencies – studies have shown improvement in their immunity with addition of vitamin and mineral supplements.<sup>3,4</sup> In otherwise nutritionally adequate people, supplementation is at best a waste of money and effort, and at worst harmful.

### **Good Nutrition and Lifestyle is the Key to Effective Immunity**

With a severe deficiency of food (calories) – starvation – the entire immune system can become compromised and this can lay the way for infection of the body by a great variety of microorganisms. This means an overall deficiency of calories, protein, fats and all the other life-giving nutrients we gain from our foods. Isolated deficiencies of micronutrients are rare, except for iron, vitamin A, and zinc.

At the other end of the spectrum is the overnutrition that is so prevalent in Western societies, with as many as 65% of people being too over-fat for their own health. This form of malnutrition also sets people up for infections and a poorer chance of survival once they're sick. Obesity has been shown to diminish the immune response.<sup>5</sup> The data on weight loss improving immune response is, however, plagued with mixed results – and I believe this is because there are many ways to lose weight and some are very unhealthy, like high protein diets.

***The best way to lose weight and improve the immune system is to eat a low-fat, plant-based diet.***

### **A Plant-Based Diet Improves Immune Response**

A recent study of ten middle-aged and elderly people with the slightly elevated cholesterol levels

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typical of many Americans showed a change to a low-fat diet (15% of calories) (not vegan) boosted their immune system.<sup>6</sup> Reasons for this improvement are because these people lost weight, reduced their cholesterol levels,<sup>7</sup> added vegetables and removed much of the immune system-suppressing fat from their diet.

### **Fats, Including Olive and Omega-3 Fats, Suppress the Immune System**

All fats, and especially the “good” fats, suppress the immune system.<sup>8</sup> This means all the added fat, not just animal fat, must go. Olive oil,<sup>9</sup> corn oil,<sup>10</sup> and the omega-3 fats, like flaxseed oil<sup>11</sup> and fish oil,<sup>11-13</sup> must be removed to enhance immune function.

You know these so called “good” omega-3 fats suppress the immune system. They are recommended to reduce the inflammation of arthritis and they work by causing a generalized suppression of the immune system. This means that the immune system that fights off viruses, and suppresses cancer growth, is also depressed.

### **Fish Decreases Immune Function Too**

You also need to remove the fish because of their anti-immune system effects. A study of 22 subjects over 40 years of age fed a low-fat, high-fish diet was found to significantly decrease various parameters of the immune response; in contrast to this diet when it was low in fish.<sup>14</sup> The authors concluded concerning fish consumption, “Such alterations may be beneficial for the prevention and treatment of atherosclerotic and inflammatory diseases, but may be detrimental with regard to host defense against invading pathogens.”

### **Low-Calorie, High-Protein Diets Harm Immunity**

Even though obesity is associated with poor immune system function, do not try to repair the damage with a low-calorie, high-protein diet. Twelve nondiabetic obese subjects were studied during a 6-week period of following a 400 calorie liquid protein diet. Significant decreases were observed in immune cells (total leukocytes, neutrophils, lymphocytes, and monocytes).<sup>15</sup> The authors wrote, “...the results of this study clearly justify some caution in the long-term use of these diets.”

***There are other positive lifestyle steps you can take to bolster your immune system.***

### **Coffee Suppresses Immunity, But Tea Benefits**

Starbucks is going to be unhappy about this finding. The effect of coffee consumption on the immune system, studied in 15 men and women, showed that functions of immunity were about one-third lower during a period of coffee drinking compared to a period of abstinence from coffee.<sup>16</sup>

However, tea is a great stimulant beverage. Eleven healthy non-tea-drinking people were instructed to drink a tea made with one bag steeped for 5 minutes in 100 ml of boiling water.<sup>17</sup> They were compared with 10 people instructed to drink 5 to 6 cups of instant coffee. The tea, but not the coffee, caused the immune cells to become see page 5

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more effective at defending the body. This effect was believed to be due to substances (alkylamine antigens) found in tea and plants that mimic the effects of protein found in microorganisms – and in this way they stimulate the immune system into action.

### **Alcohol Overuse is Detrimental**

While malnutrition, vitamin deficiencies and advanced liver disease can compromise your immune system; alcohol itself is toxic to the system. Chronic and even acute, moderate alcohol use can increase your susceptibility to infections.<sup>18</sup> But moderation (too often defined in the eyes of the user) may not be so bad. There is some evidence that daily consumption of small amounts (one to two 6-oz glasses) may be beneficial for immune function.<sup>19</sup>

### **Too Much Sunshine Can Be Hazardous**

Researchers calculated that approximately 100 minutes of solar exposure at around noon in mid-latitudes (Italy, Spain, Northern California, Pennsylvania) would suppress the resistance to infections by microbes (*L. monocytogenes*) in the most sensitive humans.<sup>20</sup> Some sunlight is essential, preventing vitamin D deficiency diseases, such as rickets. Over 90% of our vitamin D comes from sunlight exposure. The amount needed is very small. For example, for a person with a moderately fair complexion, five minutes at noon, two to three times a week, of sun exposure on the face, hands and arms (6% to 10% of the body) in Boston in the spring, summer and fall is thought to be sufficient. However, the amount of exposure varies with the skin pigmentation, latitude, and atmospheric conditions. A six-fold increase for very black skinned people may be required for vitamin D synthesis.

The SPF rating of a sunscreen does not necessarily indicate whether it will protect from immune suppression. The wavelengths that burn are different than those that suppress. The best protection seems to be with those sunscreens that filter both UVB and UVA; and have a relatively high SPF value.<sup>21</sup> You should also employ strategies of sun avoidance whenever possible, like wearing hats and other protective clothing and/or sunglasses.

### **Sleep Can Depress More than the Immune System**

Sleep is believed to have a restorative function on the immune system – and prolonged sleep deprivation may suppress the immune system.<sup>22</sup> However, one night's sleep loss has actually been shown to increase the activity of the immune system.<sup>23</sup> Therefore, short term sleep deprivation is not harmful to the immune function, but prolonged sleep deprivation may increase susceptibility to viral infections.

However, there is a balance between too much and too little sleep. Too much sleep is known to cause mental depression<sup>24</sup> and this may lead to worse health and increased risk of infection.<sup>25</sup> Limiting the hours of sleep is an extremely powerful treatment for depression.<sup>24</sup> Most healthy adults need 5 to 7 ½ hours a night. Pregnant women, children and people who are ill need more sleep.

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### **Strenuous Exercise Increases Your Risk of Infection**

Moderate levels of exercise seem to improve the immune function, especially for the elderly.<sup>26</sup> Unfortunately, intense exercise can severely depress the immune system and increase the risk of infection. High intensity, prolonged bouts of exercise have been shown to increase the susceptibility to upper respiratory infections, and during the incubation period of an infection, exercise may worsen the disease outcome. Researchers monitored levels of infection in more than 200 runners and rowers. They found the levels of infection were lowest in middle-distance runners, and highest in runners after a full or ultra-marathon and in elite rowers after intensive training.<sup>27,28</sup>

### **The Choices You Make Now May Keep SARS Away Tomorrow**

Therefore, you do not have to sit idly waiting for SARS to happen to you. You can make real choices right now that will make real differences in your future. It is especially convenient that these choices for your immune system are the same ones you are making to prevent other potential future health tragedies, like heart disease and breast cancer – and they are cost-free, non-toxic, and side-effect-free. So you have no reason to delay.

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## Cleaning Out Your Arteries

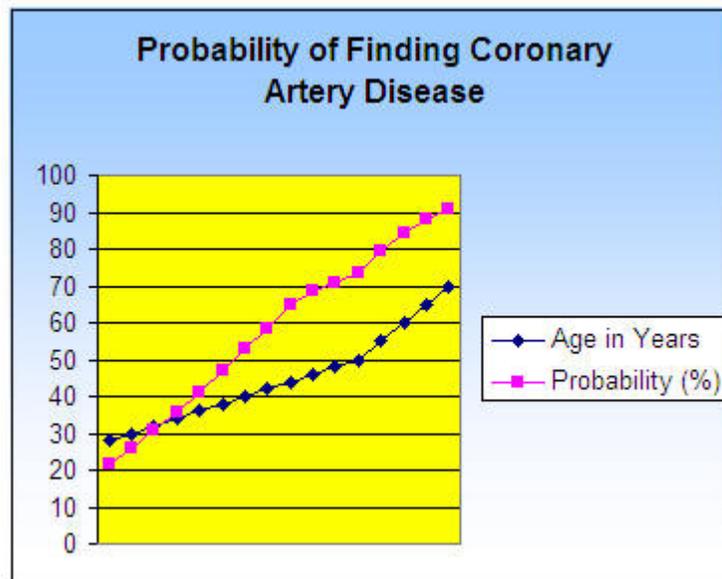
The leading cause of death in Western countries is heart disease. Possibly as many as 200,000 to 300,000 people in the United States have heart attacks every year – 1 million patients visit the hospital each year for the same reason. The third leading cause of death is another disease of the arteries, strokes. Many other diseases, from hearing loss to impotence, are also caused by closure of the blood supply to vital tissues.

The closure of arteries in various parts of the body causes all kinds of common diseases (The disease is named for the tissue that is compromised):

- macular degeneration (eye – loss of vision)
- hearing loss (ears)
- strokes (brain)
- heart attacks (heart)
- aneurysms (usually the large aorta in the abdomen)
- kidney failure
- bowel infarction\*
- degenerative disks (back pain and ruptured discs)
- claudication (pain in legs with walking)
- gangrene (death of tissues – like foot or leg)
- impotence (sexual dysfunction – limp penis)
- other kinds of infarctions\*

\* Infarction means sudden insufficiency of blood supply that produces an area of tissue death.

The older you are the greater your chance of artery disease.



We all start out with baby clean arteries, but that soon changes with consumption of the rich Western diet. Children raised on cow's milk, meat, and other delicacies soon show fatty streaks see page 9

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(the earliest stage of atherosclerosis) – in their aorta. This damage is seen as early as 9 months of age, and all children on this diet show artery damage by age 3 years.<sup>1</sup> These streaks eventually evolve into the plaques that are commonly seen on angiograms and at autopsy in adults.

### **Young and Mature Blockages**

Atherosclerosis is the name used for the disease that damages the arteries. The actual lesions are called plaques. Although some problems develop slowly from gradual closure of an artery due to enlarging plaques from atherosclerosis, most of the time the onset of a disease, like a heart attack or stroke, is brought on by *sudden blockage* of an artery. This abrupt closure is due to formation of a blood clot (thrombus) caused by the rupture of a small young plaque.<sup>3,4</sup> In the heart the process is called “a coronary artery thrombosis” – a term interchangeable for “heart attack,” because essentially all heart attacks are due to the sudden formation of a thrombus.

These deadly lesions, referred to as “fatty plaques,” are soft and filled with white blood cells (pus cells) and necrotic (dead) materials. In your mind you can accurately picture these volatile plaques as “sores” or “pustules lining the artery walls.” Fortunately, these young plaques are also the easiest and fastest component of the artery disease to heal (reverse). Therefore, within days, if not hours, of taking corrective actions (a healthy diet and judicious use of medications) you dramatically reduce your risk of a tragedy, like a heart attack or stroke. The more mature part of this disease develops over many years. This established plaque is filled with scar tissue and calcium – and as a result is very solid. This is where the name “hardening of the arteries” comes from. Therefore, reversing this established component comes very slowly with time and effort (if at all).

Any area of advanced artery disease (atherosclerosis) is made up of a spectrum of all stages of development from early, soft, fatty, to mature, hard, fibrous, plaques. Atherosclerosis is not like indestructible concrete. Instead, you should visualize this disease as an actively developing process in your arteries -- there is ongoing injury taking place at the same time that the arteries are attempting to heal themselves. Unfortunately, the disease progresses because the forces of injury, mostly from the bad diet, far outpace the body's ability to heal. Your efforts to reverse this disease have the potential to reap phenomenal improvement in your symptoms (like chest pains, shortness of breath, and fatigue), almost overnight. Small changes in the size of the opening in the artery through which the blood flows will improve a patient's symptoms far more than might be expected – because the volume of the flow of blood to the tissues increases greatly with even small increases in diameter of an artery.

Consider carefully the opportunity for rapid healing you have before you:

- First: small, but dangerous, young plaques, stabilize and reverse quickly;
- Second: a small increase in the diameter of an artery causes great improvements in flow.

### **Powerful Healing is Within Your Reach – Diet and Drugs Reverse Disease**

Atherosclerosis is not sledge-hammer resistant rock. This is tissue that can heal under the proper conditions. You can create this healing environment cost-free with a change in diet (low-fat, whole plant foods) and habits (quit smoking). A small, but important, addition for the improvement in the conditions for healing can be accomplished with the use of cholesterol-lowering medications.

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A study of 409 patients over an average time-period of 5 years found intensive treatment with a very low-fat diet (10% fat), regular exercise and enough cholesterol-lowering medication to achieve an LDL "bad" cholesterol below 90 mg/dl resulted in great improvement in patients with severe heart disease compared to a group of patients who continued to be cared for poorly.<sup>5</sup> Patients with coronary artery disease were divided into three groups based on the intensity of treatment they received. Those in the "maximum" treatment group had a 6.6% chance of suffering a heart artery related event\* compared to 30.6% in those who had poor treatment (not on diet or drugs or who were smoking). Abnormalities of flow of blood through the coronary arteries to the heart muscle were measured with a heart scan (PET scan). Those in the maximum treatment group showed improvement in their circulation to the heart after 2.6 years, while those in the poor treatment group showed worsening of their circulation.

There was also an intermediate group called "moderate treatment." They were on the American Heart Association Diet with 20% to 30% of the calories from fat and they were on cholesterol-lowering drugs. At the end of five years, 20.3% of these patients had cardiac events and after 2.6 years their scans showed worsening of their heart circulation. Thus, this approach, commonly prescribed by most practicing doctors, causes coronary artery disease to worsen, and more coronary events to occur.

The *total cholesterol levels* achieved by the three groups were an average of 140 mg/dl for the maximum treatment group, 184 mg/dl for the moderate group, and 226 for the poor group. The death rates from any cause were 3.3%, 15%, and 13%, respectively.

\* Heart related events were cardiac deaths, heart attack, angioplasty, angiograms, bypass surgery, or stroke.

### **The Maximum Treatment You Deserve**

There are many questions still to be answered about what is the ideal way to treat someone with artery disease. However, based upon what is presently known, this is the way I treat my patients with coronary artery disease. (The principles for the reversal of artery disease apply to all of the conditions of artery closure listed above, from hearing loss to impotence.):

1) I first determine if they have serious coronary artery disease – especially if they have been told they are candidates for heart surgery. This involves evaluation of their need for serious surgical interventions like an angiogram, angioplasty and/or bypass surgery. Don't take this test lightly; an angiogram is a preoperative test. The actual need for invasive surgery (angioplasty, bypass) is determined by exploring the legitimate reason(s) for performing these procedures:

- **First indication: Incapacitating Chest Pain.** Does the patient have incapacitating chest pain unrelieved by good medical therapy (a low-fat diet and medications)? In general, incapacitating chest pain is the only indication for angioplasty, because this procedure has not been shown to save lives.
- **Second indication: Lifesaving.** Does the patient have a condition that is known to respond to surgery with the result of living longer? The only clear indication that bypass surgery has the potential to be lifesaving is finding a damaged left ventricle (heart chamber) so that the patient's ejection fraction is now 50% or less (normal is 65%).<sup>6</sup> This can be determined by a noninvasive echocardiogram. In this case bypass surgery (not angioplasty) has an 18% survival advantage over medical treatment after 10 years of follow-up.<sup>6</sup> If the ejection fraction is above 50% then there is no survival advantage. (See the see page 11

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McDougall Program for a Healthy Heart for details.)

2) I place them on a low-fat, plant-based diet (the McDougall diet). This involves education that can be obtained from our books and web site (free), but is most effectively accomplished at my 10-day residential program in Santa Rosa, California. The study discussed above was far less strict than the diet I prescribe. Why am I so much more restrictive? I go for the “biggest medicine” I can find, because I’m looking for the best results possible for my patients. Besides, as you will discover, the diet I prescribe is actually the easiest one to follow for a lifetime.

3) I prescribe sufficient cholesterol-lowering medication to achieve a total cholesterol below 150 mg/dl (LDL below 90 mg/dl). I usually use statins and right now I prefer Pravachol. However, extended release niacin and a cholesterol-binding agent like colestipol (Colestid) or cholestyramine (Questran) is as good a choice.

4) I prescribe one baby aspirin a day.

5) I prescribe moderate daily exercise – after the diet has been started. I begin with a recommendation to start with reasonable amounts and working up slowly. A patient should be able to carry on a normal conversation without becoming breathless while exercising.

6) I insist on weight loss. The diet and exercise program above will be sufficient for most people to achieve trim body weight. However, the few who cannot, I place on the Maximum Weight Loss Program, which limits their intake of flour products (breads, bagels, and pastas), fruits, juices, and other simple sugars. It encourages more rice, corn, potatoes, beans, and green and yellow vegetables. Smaller more frequent meals are also encouraged; as is more exercise.

7) There may be some merit for the use of a beta blocker medication, like Metoprolol and/or an ACE inhibitor medication, like Zestril, after a heart attack.<sup>7</sup> I’m not sure because the pharmaceutical companies have manipulated the research so much it is hard for a doctor to know what is true these days when it comes to drugs. This is a very simple, low-tech, safe, almost cost-free, but highly effective way to clean out your arteries and the results usually happen faster than you would ever expect. However, all of these changes in diet and medication should be done under the supervision of a doctor experienced in this kind of care.

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to Germany reported a drop of about 50 percent in beef sales, butchers saw their businesses devastated and the number of vegetarians in Europe was reported to have risen by one million to 12 million. But the change in people's eating habits worldwide has just begun, because information about the animal food industry is spreading faster than the disease.

The June 10, 2003 *USA Today* newspaper carried a front page article, "Consumers may have a beef with cattle feed." This article was about Mad Cow Disease, also called bovine spongiform encephalopathy (BSE) -- a brain and nervous system disease that has killed at least 150 people worldwide since 1996. The infectious agent for Mad Cow, the prion, spreads by feeding cows body parts of other cows. Naturally these hooved animals are herbivores, but they have been forced to become carnivores, and to practice cannibalism. Prions are proteins resistant to almost all attempts to destroy them, including heating at high temperatures. The end result of infection in animals and humans is massive destruction of the brain tissues leaving holes in the brain that resemble a sponge on examination -- thus the name "spongiform." With destruction of their brains they become "mad cows" and "mad humans."

The following startling statements are worth repeating from this USA Today article:

- 1) Before 1997 it was standard practice to feed beef and dairy cows' pieces of "their herd mates." "In response to the outbreak (of BSE) in Britain and other European countries, the United States and Canada in 1997 made it illegal to feed cows meat and bone meal made from ruminants (other cows). The feed bans in both countries do allow use of that feed for poultry and pigs."
- 2) "In parts of the country where cattle are raised near poultry production areas, it is not uncommon to feed them (the cows) poultry litter -- basically excreta, bedding, spilled feed and feathers." ... "But there is concern that the spilled feed (containing cow parts) as well as partially digested feed might end up back in the cattle troughs, resulting in the same potential cycle of infection that caused the British outbreak of mad cow."
- 3) "The 'waste plate' exemption allows restaurants to sell plate scrapings and leftovers (beef from your restaurant meals) to renderers, which turn them into cattle feed, among other things."
- 4) "Retail pet food frequently contains ruminant meat and bone meal, but unlike agricultural animal feed, there's no requirement that it be labeled 'Do not feed to cattle or other ruminants.' However, out-of-date dry cat and dog food is sometimes sold as salvage and ends up being fed to cattle."
- 5) "Spray-dried cow and pig blood is used in feed to provide protein, as a soluble product to mix in animals' drinking water, and most commonly, as a milk replacement for calves."
- 6) "Some people are so hung up on low-cost production that they will violate whatever rules are there."

**Do you want to know more?**

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You will never be the same after reading this article reprinted with the permission of the author Michael Greger, MD\* from the May 21, 2003 issue of the *Organic Consumers Association* (<http://www.organicconsumers.org/>).

### American Beef Supply at Risk

The Canadian Agriculture Minister announced yesterday that a cow in Canada has tested positive for bovine spongiform encephalopathy, better known as mad cow disease. The United States immediately imposed a ban on Canadian beef and cattle imports, but the American beef supply may have already been placed at risk. Canada has been the number one supplier of live cattle to the United States.<sup>1</sup> Last year alone we imported 1.7 million head of cattle from Canada.<sup>2</sup> We also imported \$2.4 billion worth of beef<sup>3</sup> --that's over a billion pounds of Canadian beef in the last year alone.<sup>4</sup>

According to the National Cattlemen's Beef Association, about 7 percent of beef consumed by Americans is from Canada.<sup>5</sup> And because of NAFTA, there is no mandatory country of origin labeling from Canada, so there is currently no way for American consumers to know for certain if the beef they are eating came from Canada or not.<sup>6</sup> This is unfortunately not the first time the United States has imported cattle and beef products from countries at risk.

The United States General Accounting Office (GAO) is the investigative watchdog arm of Congress. Last year, the GAO released their report on the weaknesses present in the U.S. defense against mad cow disease.<sup>7</sup> They noted that "the United States has imported about 1,000 cattle; about 23 million pounds of meat by-products; about 100 million pounds of beef; and about 24 million pounds of prepared beef products during the past 20 years from countries where BSE was later found."<sup>8</sup> Furthermore, the report said that if the disease did enter the country, current safeguards might not be enough to detect it and keep it from spreading to other cattle or to the human food supply.<sup>9</sup> The report can be downloaded at <http://www.gao.gov/new.items/d02183.pdf>

The discovery of a case of mad cow disease in Canada highlights how ineffective current safeguards are in North America. The explosive spread of mad cow disease in Europe has been blamed on the cannibalistic practice of feeding slaughterhouse waste to livestock.<sup>10</sup> Both Canada<sup>11</sup> and the United States<sup>12</sup> banned the feeding of the muscles and bones of most animals to cows and sheep back in 1997, but unlike Europe left gaping loopholes in the law. For example, blood is currently exempted from the Canadian<sup>13</sup> and the U.S.<sup>14</sup> feed bans. You can still feed calves cow's blood collected at the slaughterhouse. In modern factory farming practice calves may be removed from their mothers immediately after birth, so the calves are fed milk replacer, which is often supplemented with protein rich cow serum.<sup>15</sup> Weaned calves and young pigs have cattle blood sprayed directly on their feed to save money on feed costs.<sup>16</sup> Michael Hansen with the Consumer's Union reports that cows won't eat feed composed of more than ten percent blood, evidently because of the taste.<sup>17</sup> Chickens, on the other hand, reportedly will eat feed composed of up to thirty-five percent blood.<sup>18</sup> The reason why the American Red Cross continues to restrict blood donations from those who lived in Europe<sup>19</sup> is because of mounting evidence that indeed blood may be infectious.<sup>20</sup> In fact, the mad cow outbreak in Japan has been tentatively tied to milk replacer.<sup>21</sup> Yet cow blood is still allowed to be fed to livestock in this country. And the Canadian<sup>22</sup> and U.S. feed bans<sup>23</sup> also allow the feeding of pigs and horses to cows. Cattle remains can be fed to pigs, for example, and then the pig remains can be fed back to cattle.<sup>24</sup> Or cattle remains can be fed to chickens and then the chicken litter, or manure, can be legally fed back to the cows.<sup>25</sup> And the cow diagnosed with mad cow disease in Canada may have indeed been rendered into chicken and pig feed.<sup>26</sup>

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D. Carleton Gajdusek was awarded the Nobel Prize in Medicine for his work on mad cow-like diseases.<sup>27</sup> He was quoted on Dateline NBC as saying, "it's got to be in the pigs as well as the cattle. It's got to be passing through the chickens."<sup>28</sup>

Dr. Paul Brown, medical director for the US Public Health Service, believes that pigs and poultry could indeed be harrowing mad cow disease and passing it on to humans, adding that pigs are especially sensitive to the disease. "It's speculation," he says, "but I am perfectly serious."<sup>29</sup>

Although the Canadian Food Inspection Agency admits the infected cow was sent to a rendering plant, the agency has tried to reassure consumers by describing rendering as a heat-treatment process used to 'sterilize' the carcass.<sup>30</sup> Unfortunately, the type of pathogen thought to cause mad cow disease is not destroyed by the rendering process.

Mad cow disease is thought to be caused, not by a virus, fungus or bacteria, but by a prion, or infectious protein. One reason prions are so concerning is that, unlike conventional pathogens, prions are not adequately destroyed by cooking, canning, or freezing.<sup>31,32</sup> Usable doses of UV or ionizing radiation, stomach acid, and digestive enzymes are all ineffective in destroying their infectivity.<sup>33,34</sup> Even heat sterilization, domestic bleach<sup>35</sup>, and formaldehyde sterilization have little or no effect.<sup>36</sup> One study even raised the disturbing question of whether even incineration could guarantee inactivation of prions.<sup>37</sup> National Institutes of Health expert Joseph Gibbs once remarked tongue-in-cheek to Cornell's Food Science Department that one of the only ways to ensure one's burger is safe is to marinate it in a concentrated alkali such as Drain-O.<sup>38</sup> Prions have been called the smallest,<sup>39</sup> most lethal self-perpetuating biological entities in the world.<sup>40</sup>

Europe has forbidden the feeding of all slaughterhouse waste to livestock. The United States and Canada should do the same, according to William Leiss, president of the prestigious Royal Society of Canada.<sup>41</sup> The American Feed Industry Association calls such a ban a radical proposition.<sup>42</sup> The American Meat Institute also disagrees stating, "No good is accomplished by...prejudicing segments of society against the meat industry."<sup>43</sup> U.S. health officials<sup>44</sup> and the Canadian Agriculture Minister<sup>45</sup> were quick to emphasize that only a single positive case was found. But Canada has been testing less than 0.01 percent of their cattle population for mad cow disease.<sup>46</sup> Canada now joins the ranks of other countries like Germany, France, Belgium and Italy that all confidently pronounced that they, too, were "free" of mad cow disease, until tests showed otherwise.<sup>47</sup> Will the United States be next?

The General Accounting Office was right to fault the USDA for inadequate testing.<sup>48</sup> Last year, the United States tested a little under 20,000 cattle for mad cow disease.<sup>49</sup> That's less than Europe tests every day.<sup>50</sup> "This demonstrates that no cattle-producing country can think it's safe," Steve Bjerkli of *Meat Processing* magazine told *USA Today* in response to the Canadian discovery. "It really is a clarion call to the U.S. Department of Agriculture to step up surveillance in this country."<sup>51</sup> More information about the inadequacy of mad cow disease surveillance in the United States can be found at <http://www.testcowsnow.com/>

No one yet knows the source of the Canadian outbreak. It remains possible that the cow in question contracted the disease from local wildlife.<sup>52</sup> Chronic wasting disease is a prion disease of wildlife affecting deer and elk, and is endemic within the area where the infected cow was living.<sup>53</sup> The disease was exported there by the United States. Chronic wasting disease, also called "mad deer disease," seems to have started in Colorado, but has now been see page 16

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found in over a dozen states.<sup>54</sup> Just last year it crossed the continental divide into Wisconsin where a mass killing zone has just been set up to eradicate tens of thousands of white tail deer in a vain attempt to slow the spread of the disease.<sup>55</sup> Chronic wasting disease seems unique in that the prions seem to be spread by casual contact between the deer. One can only hope that this disease would not be as infectious if it jumped from deer or elk into cattle (or into human beings for that matter).<sup>56</sup> Transmission to cows or people has yet to be documented, but the best available science suggests that it is possible.<sup>57</sup>

It was only last week when the Food and Drug Administration finally drafted up proposed voluntary guidelines recommending that deer and elk infected with chronic wasting disease, or at high risk for the disease, be excluded from animal feed.<sup>58</sup> This is a measure the World Health Organization and the United Nations Food and Agriculture Organization have been urging for years.<sup>59</sup> Thankfully, Canada has a trace-back program in which all Canadian cattle are tracked throughout their lives. This should facilitate locating the source of the outbreak. The United States lacks such a program. U.S. officials argue that such extensive tracking isn't necessary, because there has never been a case of mad cow disease detected in the U.S.. As one Alberta veterinarian responded, "we (Canadians) would have said that yesterday."<sup>60</sup>

In response to the Canadian crisis, the Chief Executive Officer of the U.S. National Cattlemen's Beef Association released a statement urging consumers to "continue to eat beef in confidence."<sup>61</sup> "First," the news release explains, "the Canadian case proves that the systems designed to protect consumers do work. The animal in question did not enter the food supply." Based on the circumstances, though, it seems more like random chance that the cow got tested at all.<sup>62</sup> And had the animal instead entered a U.S. slaughterhouse, chances that it would have been tested seem even more remote.

The Cattlemen's Association notes specifically that Americans can be confident in the safety of U.S. beef because, "Animals with any signs of neurological disorder are not permitted to enter the human food chain and are tested for BSE."<sup>63</sup> Yet the Canadian cow wasn't necessarily displaying neurological symptoms.<sup>64</sup> The Alberta Agriculture Minister Shirley McClellan explained the 14 week testing delay by noting that the cow didn't appear to have BSE when it was condemned; it was underweight and thought to have pneumonia.<sup>65</sup> Fortuitously, though, the cow in Canada was deemed unfit for human consumption.<sup>66</sup> There's reason to believe that if the cow had entered a U.S. slaughterhouse, not only might it not have been tested, it may have ended up on America's dinner plate. According to an investigation of USDA slaughterhouse records, almost three quarters of cattle that were even too sick to stand were passed as fit for human consumption, including those who appeared sick with pneumonia.<sup>67</sup> The slaughter of these downed animals for human food is particularly risky now that mad cow disease has been discovered in North America. The downed animal investigation can be downloaded at <http://www.nodowners.org/downedanimals.pdf>

The Cattlemen's Association also feels consumers can be confident in the safety of American beef because "The BSE agent is not found in meat. It is found in central nervous system tissue such as brain and spinal cord."<sup>68</sup> This can be viewed as irresponsible on a number of counts. As of this month we now have published evidence that animals who are orally infected may indeed end up with prions contaminating muscles throughout their body.<sup>69</sup> And Americans do eat bovine central nervous system tissue. Quoting from the General Accounting Office report: "In terms of the public health risk, consumers do not always know when foods and other products they use may contain central see page 17

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nervous system tissue... Many edible products, such as beef stock, beef extract, and beef flavoring, are frequently made by boiling the skeletal remains (including the vertebral column) of the carcass..." According to the consumer advocacy organization Center for Science in the Public Interest, spinal cord contamination may also be found in U.S. hot dogs, hamburgers, pizza toppings, and taco fillings.<sup>70</sup> In fact, a 2002 USDA survey showed that approximately 35 percent of high risk meat products tested positive for central nervous system associated tissues.<sup>71</sup>

The GAO report continues: "In light of the experiences in Japan and other countries that were thought to be BSE free, we believe that it would be prudent for USDA to consider taking some action to inform consumers when products may contain central nervous system or other tissue that could pose a risk if taken from a BSE-infected animal. This effort would allow American consumers to make more informed choices about the products they consume."<sup>72</sup> The USDA, however, did not follow those recommendations, deciding such foods need not be labeled.<sup>73</sup>

Even if one avoids processed beef products, though, the possibility of prion contamination remains. While concentrations of prions may start out in the brain and spinal cord, they may not stay there. Before being exsanguinated, many cattle in the U.S. are knocked unconscious with a pneumatic gun, which uses an explosive burst of air that can blows bits of potentially highly infectious brain throughout the bodies of animals stunned for slaughter.<sup>74</sup>

Despite these shortcomings, both the U.S.<sup>75</sup> and Canadian agriculture secretaries<sup>76</sup> have scrambled to express their continued affinity for steak, reminiscent of the 1990 fiasco in which the British agriculture minister appeared on TV urging his 4-year-old daughter to eat a hamburger.<sup>77</sup> Four years later, young people in Britain were dying from an invariably fatal neurodegenerative disease called variant Creutzfeldt-Jakob Disease – the human equivalent of mad cow disease – which they contracted through the consumption of infected beef.<sup>78</sup>

The General Accounting Office report concludes: "BSE may be silently incubating somewhere in the United States. If that is the case, then FDA's failure to enforce the feed ban may already have placed U.S. herds and, in turn, the human food supply at risk. FDA has no clear enforcement strategy for dealing with firms that do not obey the feed ban... Moreover, FDA has been using inaccurate, incomplete, and unreliable data to track and oversee feed ban compliance."<sup>79</sup> The U.S. and Canada have basically the same safeguards in place, with the same loopholes and the same inadequate surveillance. If Canada has mad cow disease, then it stands to reason that the United States does as well. Either way, whether from the millions of cattle, or the billions of pounds of beef we imported from Canada previous to yesterday's ban, American beef consumers have been placed at risk.

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## EATING OUT IN A SANDWICH SHOP

### Deli Sandwiches

My most memorable experience with ordering a sandwich happened one day after a radio interview in Detroit. My Dad and I went to the first floor deli in the Fisher Building. After ordering a whole wheat bread sandwich with lettuce, tomatoes, onions and mustard, I asked for the bill. The response was, "We've never sold a sandwich without meat – no charge." I have never been so lucky again, but I have found many great sandwiches as I have traveled around the country and in my own hometown.

No matter where you live, you can always find sandwiches. They are in supermarkets, delis, restaurants, and sold by street-side vendors. The most dedicated are submarine sandwich shops, like Subway, Port of Subs or Togos. Our youngest son, Craig (20 years old), is convinced that the supermarket delis make the freshest and best veggie sandwiches – he now gets them at the Nugget Market in Davis, California. Another popular national (except California) "sandwich-oriented" restaurant is Panera Bread – a wide variety of vegetarian and vegan options for sandwiches and soups are on the menu. Get menus and locations on line at [www.panerabread.com](http://www.panerabread.com). Schlotzsky's Delis are all over the USA – they serve vegetarian sandwiches and wraps to order and several vegetarian low-fat soups daily.

Sandwich orders are very basic: bread and vegetables, with a little sauce. Start by ordering the kind of bread that you want; in general, the whole grain, dark rye, and sour-dough varieties are your healthier choice. Next decide on the "insides." Vegetable options include: tomatoes, avocados (remember this is a high fat option), onions, cucumbers, bell peppers, pepperoncini, black olives, pickles, sprouts, and lettuce. Sometimes there will be more exotic choices, like artichoke hearts, shredded carrots, mushrooms, hummus, roasted zucchini, roasted eggplant, and roasted peppers (the roasted vegetables are usually higher in fat because they are brushed with olive oil). Make sure you remember to add, "No cheese of any kind." Also, tell them to skip the mayonnaise and the olive oil dressing. Your choice of dressings is limited to mustard, and maybe, if you're lucky, a low-fat salad dressing.

Look for a place that caters to the health conscious consumer. Here is the sandwich menu from the Washington Deli, 1990 K Street NW, Washington, DC. (Tell them to leave off the cheese and any added oils.)

**Mock Deli Sandwich:** Delicious mock "turkey," "ham," "smoked turkey," "bologna," and more with leaf lettuce; "ham," "smoked turkey," "bologna," and more with leaf lettuce and served on a variety of vegan friendly breads with dairy-free "cheese."

**Veggie Lovers Sandwich:** Grilled red peppers, zucchini, squash, baby spinach, sprouts and hummus served on a variety of pita pockets, tortilla wraps, bread, and rolls.

**Greek Sandwich:** Cucumbers, tomatoes, olives, leaf lettuce, feta cheese and yogurt sauce served on pita pockets and tortilla wraps.

**Mexican Wrap:** Diced tomatoes, guacamole, grilled red and green peppers, grilled onions, and salsa in assorted tortilla wraps.

**Falafel Sandwich:** Falafel, hummus, onions, lettuce, tomatoes, and hot peppers (optional) served on pita pockets and tortilla wraps.

**Tofu Burgers (or Lentil Burgers or Portobello Burgers):** Tofu (or Lentil or Portobello) burger, i>: Tofu (or Lentil or Portobello) burger, grilled veggies (onions, peppers, mushrooms, etc.),

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tahini/mustard/chutney/vegenaise as dressing.

**BBQ Seitan Wrap:** BBQ Seitan, lettuce, diced tomatoes, grilled onions, soy cheese in a tortilla wrap.

### **Burgers and Hot Dogs**

These days most restaurants offer “veggie burgers” on their menu. Unfortunately, most contain dairy (cheese) and eggs. For example, one very popular item with restaurants is the Gardenburger made by Gardenburger, Inc. of Portland, Oregon, which contains dairy and egg whites. Even if the restaurant makes their own “veggie burgers,” you still need to ask about the ingredients.

Burger King recently introduced a burger made from grains, vegetables (no soy), and spices called the “BK Veggie.” It does contain some oil (and I’ve been told it is grilled on the same grill as their beef burgers – what risks could this bring along with the taste of the real thing?). The burgers are made to order, so ask for the right toppings, like onions, pickles and tomatoes; and maybe some ketchup and mustard. Each patty is 120 calories with 4 grams of fat (30% fat). The bun is 160 calories and 4 grams of fat (17% fat). No trans-fats are used.

Chili’s (Grill and Bar – Family Restaurant) also serves a black bean veggie burger, which does contain some egg whites. In very small print under their list of regular burgers on the menu, you will find the option “Black bean burger substituted upon request.” Be sure to tell them no cheese and no mayo. Ask for mustard, ketchup, pickles, onions and lettuce, instead.

Giants’ fans can get soy hot dogs at the baseball park in San Francisco. A bun made from refined wheat flour is your choice. Load your veggie dog up with mustard, ketchup, relish and onions (and sauerkraut, if you must) and you will never miss the meat. Many other ballparks around the country also offer “veggie dogs”.

### **Vegetarian Wraps**

All across the East Coast, lower Midwest and California you will find a chain called “Great Wraps.” Here you can get hot tortilla and hot pita wraps made vegetarian. They serve a “Portobello mushroom wrap” and a “veggie and cheese wrap.” Order it nbsp; Order it without the cheese or dairy-based sauces. There are also many other chains and independent shops that make pita bread sandwiches and wraps. Be forewarned that most of these wraps have a considerable amount of fat in the tortilla shell and if you have the option of a “low-fat” shell you will save many calories of unwanted fat. Pita bread is usually the will save many calories of unwanted fat. Pita bread is usually the healthier choice.

### **Peanut Butter and Jelly**

No question about it, the traditional P & J sandwich is high fat and sugar, but it can be made healthier by leaving off the butter – and this may be the best you can do when trying to order for a child on the road or at home. Ask for “natural” peanut butter, rather than the varieties made with hydrogenated oils.

### **Pack and Go**

Don’t overlook the simple idea of packing king your own homemade sandwiches in a brown bag or cooler for work or play for a simple and inexpensive meal. To avoid the “soggy sandwich” see page 23

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problem, pack the tomatoes and any other juicy vegetables in small plastic bags and add them to the sandwich just before you eat it. Start with a bean-based sandwich spread or homemade veggie burger between healthy sliced bread or buns and take along assorted toppings to add later.

## Recipes

### BEAN BURRITOS

I have discovered over many years that the beans have a different taste if they are cooked in a slow cooker. This is the way I make them most of the time, and the way I serve them to guests. I do cook them in a pressure cooker or on the stove occasionally, but they just don't have the same long-cooked flavor. My family has been eating this meal for about 28 years and it is my most requested dinner, by family and friends. It is easy to serve to any number of people, because everyone makes their own burrito, adding as much or as little of the toppings as they wish. This is a favorite meal for our "vegetable hater" friend, Sharon. She likes the beans, soy taco "meat" and the soy cheese. She also eats guacamole and tomatoes on her burritos, along with some salsa and maybe a bit of lettuce too.

Preparation Time: 15-30 minutes

Cooking Time: all day

Servings: variable, at least 10-12

Smashed pinto beans:

2-3 cups dry pinto beans

Water to cover at least 2 inches over beans

1 large onion, coarsely chopped

4-6 whole cloves fresh garlic

Place all ingredients in a slow cooker and cook for 8-10 hours on high. Pour off almost all of the water that remains after cooking (save for another use, if desired) and mash with an electric hand mixer or a hand held bean masher. (The onion and garlic will be soft enough to mash with the beans.) Season with a little salt, if desired.

Hint: There will be beans left-over when you make this amount. They may be refrigerated for about 5 days or put them in the freezer for later use. I always make a lot of these and use the left-overs for Bean Enchiladas, Mexican Pizza or another meal of burritos for lunch later in the week.

Taco "meat":

1 12 ounce package Yves Veggie Ground Round (original)

1 package Bearitos or Hain Taco Seasoning mix

water as directed on package

Place the "ground round" in a non-stick frying pan and break up with a wooden spoon. Add the taco seasoning and the water as directed on the package. Mix well. Cook over medium heat, stirring occasionally, for about 8-10 minutes.

Guacamole:

4 avocados, mashed

1/8 cup chopped green chilies (canned)

1 tomato, chopped

squeeze of fresh lime juice

dash Tabasco sauce

Combine all ingredients in a bowl and mix well.

Hint: This is a high-fat treat. If you are trying to lose weight or regain your health, it would be best to avoid this on your burrito. It is nice to have this available for guests, though. You only need a small amount to add a lot of flavor to your burrito. To save the guacamole for later use, place in a small container and flatten down the top with a spoon. Then place some plastic wrap over the guacamole, pressing it down well with your fingers so there is no air space anywhere on the top of the container. (You can also do this by layering a small amount of salsa over the guacamole so none of the avocado shows through.) Avocado turns brown when exposed to the air and may be kept in the refrigerator for a couple of days if you prevent the exposure to air, either with plastic wrap or salsa.

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Enchilada sauce:

1 8 ounce can tomato sauce  
1 ½ cups cold water  
1 to 1 ½ tablespoons chili powder  
2 tablespoons cornstarch  
¼ teaspoon onion powder  
1/8 teaspoon garlic powder

Combine all ingredients in a small saucepan and mix with a whisk. Cook and stir over medium heat until thickened, about 5 minutes. Serve warm.

Toppings: chopped onion, chopped tomato, shredded lettuce, alfalfa sprouts, grated soy cheese, assorted fresh salsas. Assorted burrito shells, both flour and corn

To serve:

Place all ingredients in individual bowls and place on a serving counter or table. Let each person take a burrito shell, warm it on a dry non-stick griddle if they wish, and then layer it with all the ingredients that they like. For example: burrito shell, beans, taco "meat", guacamole, soy cheese, onions, tomatoes, lettuce and salsa. Then if they want a "wet" burrito, fold over the burrito shell and ladle on some warm enchilada sauce.

### **EASY OATS (OR CEREAL) FOR TWO**

This is the usual breakfast for John and Mary. It is delicious as well as nutritious!

Preparation Time: 2 minutes

Cooking Time: 20-30 minutes

Servings: 2

2 ½ cups water  
1/8 cup currents or raisins  
1 1/8 cup rolled oats or 4-grain cereal

Place the water in a small saucepan. Bring to a boil. Add dried fruit and cereal. Stir to mix. Reduce heat to low and cook over low heat, stirring occasionally for 20-30 minutes. Serve with sliced bananas, blueberries or other fresh fruit on the top. Add a small amount of other sweetener, such as brown sugar, if desired.

Hint: If you don't have enough time to make this in the morning, it may be prepared ahead of time and reheated in the microwave when you are ready to eat.

### **PIZZA**

Almost everyone knows how to put together a pizza without a recipe. It is possible to be very creative when preparing pizzas for yourself and others. You can start with a traditional red sauce, either homemade or store-bought pasta sauce, and layer favorite, healthy ingredients on top of that. Or you can try something a bit different and use a variety of mashed beans for the base with assorted vegetable on the top. Baking time is only about 10 minutes, so you can have dinner on the table very quickly. The best tasting and healthiest pizza crust is made by Dallas Gourmet Bakery in Texas. It contains only flour water, yeast and salt. Your local natural food store may stock this or it may be ordered directly from the company.

Kabuli crust (made by Dallas Gourmet Bakery)

Phone # 972 247 9834

Preparation Time: 10 minutes

Cooking Time: 10 minutes

Servings: 8

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1 large Kabuli pizza crust

$\frac{3}{4}$  cup fat-free pasta sauce

assorted toppings: chopped onions, chopped bell peppers, sliced mushrooms, chopped pineapple, chopped broccoli, sliced zucchini, chopped artichoke hearts, etc.

Optional toppings: shredded soy cheese, sliced non-fat, meat-free pepperoni, veggie ground "round", crumbled tofu

Preheat oven to 450 degrees.

Spread sauce evenly over pizza crust. Layer on the toppings of your choice. Place on a baking tray and bake for about 10 minutes. Remove from oven, let cool slightly, then slice and enjoy.

Hints: Other recipes for pizza may be found in the McDougall Quick & Easy Cookbook.

## **LASAGNA**

We serve this the first night at the McDougall 10 day live-in program. Everyone loves it! It is a wonderful dish to make for guests or to take to a potluck dinner.

Preparation Time: 30 minutes

Cooking Time: 60 minutes

Resting Time: 10 minutes

Servings: 6-8

1 15.5 ounce package Organic Garlic & Herb Tofu (Small Planet)

1 10 ounce package frozen chopped spinach, thawed and squeezed dry

8 ounces lasagna noodles

7 cups fat-free pasta sauce

12 ounces Soy mozzarella cheese, grated

$\frac{1}{4}$  cup soy parmesan cheese (Galaxy Foods)

Preheat oven to 350 degrees.

Bring a large pot of water to a boil. Drop in the lasagna noodles, stir, cook uncovered until just softened. Do not over-cook. Remove from water and drain, hanging them up to dry slightly.

Drain the tofu to remove excess water. Crumble into a bowl. Add the thawed, squeezed spinach and mix well. Add  $\frac{1}{4}$  teaspoon salt and mix in well.

Lightly oil the bottom of a 9x13 inch baking dish. (Remove any excess with a paper towel.) Place 1 cup of the pasta sauce in the bottom of the baking dish and smooth over the bottom. Place 1 layer of the noodles over the sauce. Then add half of the tofu mixture and smooth out. Sprinkle half of the soy cheese over that, then spread 2 cups more of the sauce over the cheese. Add another layer of noodles, the rest of the tofu mixture, the remaining cheese, 2 cups more of the sauce, and the rest of the noodles. Spoon the remaining 2 cups of sauce over the noodles (make sure you cover all the edges), sprinkle some soy parmesan over the top. Cover with foil. Bake for 60 minutes. Remove from oven and let rest for 10 minutes before cutting.

This may be prepared ahead of time and refrigerated before baking. Add about 15 minutes to the baking time.

Hints: The tofu is seasoned with a mixture of fresh herbs, garlic, parsley, basil, dill and chives, which really makes it special. If you are unable to find this brand of tofu, season any plain, firm tofu with a mixture of these before adding the spinach. The tofu is quite flavorful so you will need quite a bit of each one, finely chopped, and well mixed into the tofu. I put my pasta sauce into a blender jar and processed it briefly before using in the recipe.

## **NOTE ABOUT BANGKOK NOODLES-VARIATION ( December 2002)**

We have been making these with linguini pasta instead of rice pasta and enjoying them cool for lunch and dinner. You will need about 12-14 ounces of linguini for the recipe. I also use more shredded carrots, more bean sprouts and double the amount of baked tofu. This is a wonderful, easy summer meal.